MESSAGE FROM THE STEERING COMMITTEE CHAIR

2018 marks the 37th year of IEEE INFOCOM. Back 37 years ago, the first INFOCOM was held in 1982 in Las Vegas, with Harvey Freeman as General Chair and Vint Cerf as TPC Chair, and the keynote speakers were Larry Roberts and Bob Kahn. Over the years, IEEE INFOCOM grew together with the proliferation of the Internet and wireless communications. Numerous pioneers of networking technologies publish their best works in IEEE INFOCOM and grow their careers around the conference. IEEE INFOCOM is proud to play a pivotal role in advancing networking technologies for our society and serves as a special meeting venue for the people who make this happen.

Today, among the well-known statistics-based ranking system (e.g., Google Scholar, Microsoft Academic Search), IEEE INFOCOM is ranked a top conference in the world. Recently, Acemap[1], a new ranking system developed by Prof. Xinbing Wang and his team at Shanghai Jiao Tong University, made its own independent ranking and again IEEE INFOCOM comes out as the number one conference in computer networks and wireless communications.

Since 2015, IEEE INFOCOM has adopted a new paper assignment tool that was developed by Prof. Baochun Li. This new tool eliminates the many flaws associated with the paper assignment algorithm in EDAS while offers much better match between submitted papers and TPC members' true expertise (based on their published papers). The motivation, technology, and outcome of this new tool are documented in an article "The New Automated IEEE INFOCOM Review Assignment System" (IEEE Network, Volume 30, Issue 5, Sept.-Oct. 2016). With this state-of-the-art paper assignment tool in place, the next challenge is to ensure ratings from different TPC members are consistent and truly reflect the quality of the papers. As a major step of making an improvement, the TPC Chairs instituted a relative order-based rating in the review process this year, in addition to the traditional absolute score-based rating. Although this is the first year that we implement this order-based relative ranking for trial at IEEE INFOCOM, it has shown its potential. We will continue improving and perfecting this rating system in the coming years so that human-related fairness issues can be effectively mitigated in the review process.

IEEE INFOCOM's annual TPC meeting is a major event in the networking community. For 2018, we had 220 TPC members and Area Chairs from all over the world attend the one-day TPC meeting in Boston. The level of enthusiasm, dedication, and energy from the TPC members can hardly be match by any other conferences in the community. After all, this is IEEE INFOCOM!

During its opening session, IEEE INFOCOM gives out two highly prestigious awards. The first is the IEEE INFOCOM Achievement Award, which is a lifetime achievement award to an individual who has a body of work that has had significant impacts on the networking community in general, and IEEE INFOCOM in particular. This year, the award goes to Prof. Mario Gerla for his contributions to modeling, implementation and testing of wired and wireless network protocols. The second prestigious award is the IEEE INFOCOM Test-of-Time Paper Award, which recognizes papers published between 10 to 12 years ago (a three-year window) in the IEEE INFOCOM proceedings that have been most cited and widely recognized to have a significant impact on the research community. For 2018, two papers published in 2006 – 2008 IEEE INFOCOM proceedings are selected to receive this award.

It is a pleasure for me personally to work with the IEEE INFOCOM 2018 organizing committee. Your commitment and dedication are the keys to the success of IEEE INFOCOM. Special thanks to Baochun Li, who provided software and technical support to the entire paper review process as well as the conference App. We thank Harvey Freeman, past-president of IEEE Communications Society (ComSoc) and Founder of IEEE INFOCOM, for his continued help with conference organization. We thank Jimmy Le, who is the new ComSoc staff supporting IEEE INFOCOM conference operations this year. Finally, we want to thank Heather Ann Sweeney, who worked diligently on the production of this final program.

Tom Hou
IEEE INFOCOM Steering Committee Chair

References

[1] Acemap URL: http://acemap.openacademic.ai/CCFHIndex

MESSAGE FROM GENERAL CHAIRS

Aloha!

Galen Sasaki

Yingfei Dong

Welcome to the IEEE INFOCOM 2018! As the General Chair and Vice Chair of the conference, it is a great honor to hold this event here in Honolulu. Having INFOCOM here is especially meaningful to us because this is the home of the ALOHA protocol and network, the first wireless data network.

We have an exciting program of technical sessions, workshops, panels, posters and demos. IEEE INFOCOM continues to be the premier conference in networking by highlighting the most current research topics, and maintaining the highest standards to ensure excellent contributions. It retains its vitality by quickly adapting to the changing interests and needs of the community. This meeting also provides the perfect venue for established and new researchers to share ideas. For many of us, this was the first major conference where we presented our work as students.

The conference has been made possible through the hard work of the organizing committee. The TPC, with a triple-blind review process, has ensured the high standards of this conference. We are really grateful to the TPC Chairs Shiwen Mao, Tommaso Melodia, and Prasun Sinha, the TPC Area Chairs, and all the TPC members. Of course, we are very thankful to the authors who have submitted their high quality work to this conference. We give our heartfelt thanks to our Chief Architect of Software and Systems, Baochun Li, who continuously adds improvements to the conference experience. We are thrilled to have Jim Kurose as our Keynote Speaker. Jim is a vigorous leader in our community, from research to education; and we are very thankful that he is our speaker. We would also like to extend our utmost gratitude to all members of our Organizing Committee: TPC Vice Chair for Information Systems: Danda Rawat; Panel Chairs: Wenjing Lou and Hui Zang; Workshop Chairs: Mehmet Can Vuran and Song Guo; Demo/Poster Chairs: R. Venkatesha Prasad and Yao Zheng; Student Travel Grants Chairs: Wei Gao and Dejun Yang; Publication Chairs: Ming Li and Danda Rawat; TPC Meeting Arrangements Chair: Kaushik Chowdhury; Publicity Chairs: Kai Chen, Tomohiko Taniguchi, and Qiben Yan; Local Arrangement Chairs: Depeng Li and Yi Zhu; Finance Chairs: Harvey Freeman and Bruce Worthman; and Web Chairs: Wei Wang and Rui Zhang.

We are truly thankful to the Steering Committee for providing all its support and leadership, and especially to its Chair, Tom Hou. Due to Tom's dedication, the conference organization has been smooth and with significant improvements. We also thank the staff of the IEEE Communications Society, and in particular Jimmy Le, who provided invaluable help and support.

We hope that IEEE INFOCOM 2018 will be productive and inspiring, and you will enjoy the sites and beaches of Hawaii.

Galen Sasaki
IEEE INFOCOM 2018 General Chair

Yingfei Dong
IEEE INFOCOM 2018 General Vice Chair

MESSAGE FROM TPC CHAIRS

Shiwen Mao

Tommaso Melodia

Prasun Sinha

Danda B. Rawat

On behalf of the technical program committee, it is our great pleasure to welcome you to Honolulu for the 37th IEEE Conference on Computer Communications (INFOCOM 2018). As has been the tradition of the conference, IEEE INFOCOM 2018 continues to feature a high-quality technical program across a wide range of research areas in computer communications and networking. This year's main conference program consists of 308 papers selected from 1,609 submissions through a rigorous review process, which represent the forefront of networking research as they explore important new ideas and directions in the field.

All submitted papers went through a triple-blind review process. The author identity, reviewer identity, and area chair identity are all hidden during the review process. The Technical Program Committee of IEEE INFOCOM 2018 consisted of 50 area chairs, 422 regular members, and 50 advisory members from a wide variety of academic, industrial, government, and research organizations around the globe. Each paper received at least three reviews, with a total of 5,010 completed reviews overall. Based on extensive online discussions, 110 papers were accepted before the TPC meeting. 404 papers were discussed in-person at the TPC meeting held in Boston, MA, USA, on 11 November 2017, from which 198 additional papers were accepted into the main technical program, resulting in an acceptance ratio of 19.14%.

Assignment of 1,609 papers to 50 area chairs and 472 TPC members is a great challenge, and we relied on the automatic review assignment system adopted since INFOCOM 2015 to accomplish this daunting task. This automatic assignment system, developed by Prof. Baochun Li of the University of Toronto, analyzes TPC members' representative papers along with the submitted papers using Latent Semantic Indexing on a full-text basis to compute pair-wise similarity scores between TPC members and submitted papers. The matrix of similarity scores is used as input to a linear program solver to find a globally optimal matching that maximizes the total similarity score across the board. This year, all reviews have been assigned using this system, including assignments to area chairs, regular TPC members, and advisory TPC members. Our analysis confirms once again, as in the previous three editions, that this assignment system results in very high reviewer expertise and, consequently, high quality reviews.

This year for the first time, in addition to regular review scores, each reviewer has also ranked each paper among all the papers that he/she reviewed. Such local rankings were then transformed into a global ranking by a software, again written by Prof. Baochun Li, implementing the Schulze method for election systems. The global ranking was given to all TPC members at the TPC meeting to provide additional information for the discussion of borderline papers.

With 5,010 reviews, the review process reflected a significant amount of voluntary effort and commitment from the entire networking research community. We recognized 100 TPC members as "Distinguished Members of the 2018 IEEE INFOCOM Technical Program Committee," based on peer ratings among the TPC members and promptness in meeting the deadlines.

In addition to the main technical program, there are six full-day and 10 half-day workshops, a panel titled "Fog Computing and Networking – What's Next?" and another panel titled "Machine Learning in Networking." We are especially pleased to have Dr. Jim Kurose deliver the plenary keynote talk. Moreover, two demo sessions and two poster sessions are included in the three-day main conference program. Finally, three prestigious awards will be presented at the opening session: the IEEE INFOCOM Achievement Award, the IEEE INFOCOM Test of Time Award, as well as three IEEE INFOCOM Best Paper Awards.

This year's conference mobile app has been redesigned by Prof. Baochun Li. In addition to a new UI, a new feature is that the app not only supports voting for Best-in-Session-Presentation Awards, but also starts to support a "community discussion" feature for users authenticated with iCloud, Google, or Facebook. You are encouraged to explore what the new, much improved app can do during the conference.

For a conference the size of IEEE INFOCOM, a high-quality technical program would not be possible without countless hours of hard work from many researchers in the community. We would like to thank all Area TPC chairs, TPC members, and external reviewers for their outstanding dedication and hard work. We would like to thank the conference general chairs, Profs. Galen Sasaki and Yingfei Dong, and the steering committee chair, Prof. Tom Hou and his committee, for their continuing leadership, support, and guidance. We extend our sincerest thanks to Prof. Baochun Li, who designed, maintained, and improved the automated paper assignment system and the smartphone App as the chief architect of software and systems, and significantly contributed to the quality of the resulting program. We are grateful to our TPC meeting arrangement chair, Prof. Kaushik Chowdhury, for his time and efforts in organizing an excellent TPC meeting in Boston, MA with a record-high attendance of 220. We are also grateful for the hard work of our panel co-chairs, Prof. Wenjing Lou and Dr. Hui Zang, in organizing two excellent panels on timely topics; our poster and demo co-chairs, Profs. R. Venkatesha Prasad and Yao Zheng, for organizing the poster and demo program; as well as our workshop co-chairs, Profs. Mehmet Can Vuran and Song Guo, and the workshop organizers for putting up a strong workshop program.

Moreover, we would like to convey our appreciation to members of the Best Paper Award Committee, Profs. Suman Banerjee, Carla Fabiana Chiasserini, Sanjay Shakkottai, and Zhi-Li Zhang, for their dedicated and meticulous work in the award selection process. We would like to thank Profs. Wei Wang and Rui Zhang, for maintaining the conference website as Web Chairs. Our thanks also go to Jimmy Le, IEEE Communications Society, for his invaluable assistance in coordinating various IEEE related activities. Finally, we would like to thank all the authors for their continuing support by submitting their original contributions to this conference.

We look forward to meeting you at IEEE INFOCOM 2018 in Honolulu, HI, USA, and hope you enjoy the technical program.

Shiwen Mao, Tommaso Melodia and Prasun Sinha
IEEE INFOCOM 2018 TPC Co-Chairs

Danda B. Rawat
IEEE INFOCOM 2018 TPC Vice Chair — Information Systems